THREAD-SPECIFIC HEAPS

Abstract of the Invention

Thread-specific heaps are employed in multithreaded programs to decrease garbage collection latency in such programs. Program data in a target program is analyzed to identify thread-specific data and shared data. Thread-specific data is identified on the basis that the thread-specific data is determined to be reachable only from a single program thread of the target program. Each program thread can be associated with an individual thread-specific heap. Shared data is identified on the basis that the shared data is potentially reachable from a plurality of program threads of the target program. An exemplary method of identifying such data is referred to as a thread escape analysis. Garbage collection of such heaps may be performed independently or with minimal synchronization. Remembered sets may also be used to increase the independence of collection of individual heaps and to decrease garbage collection latency.